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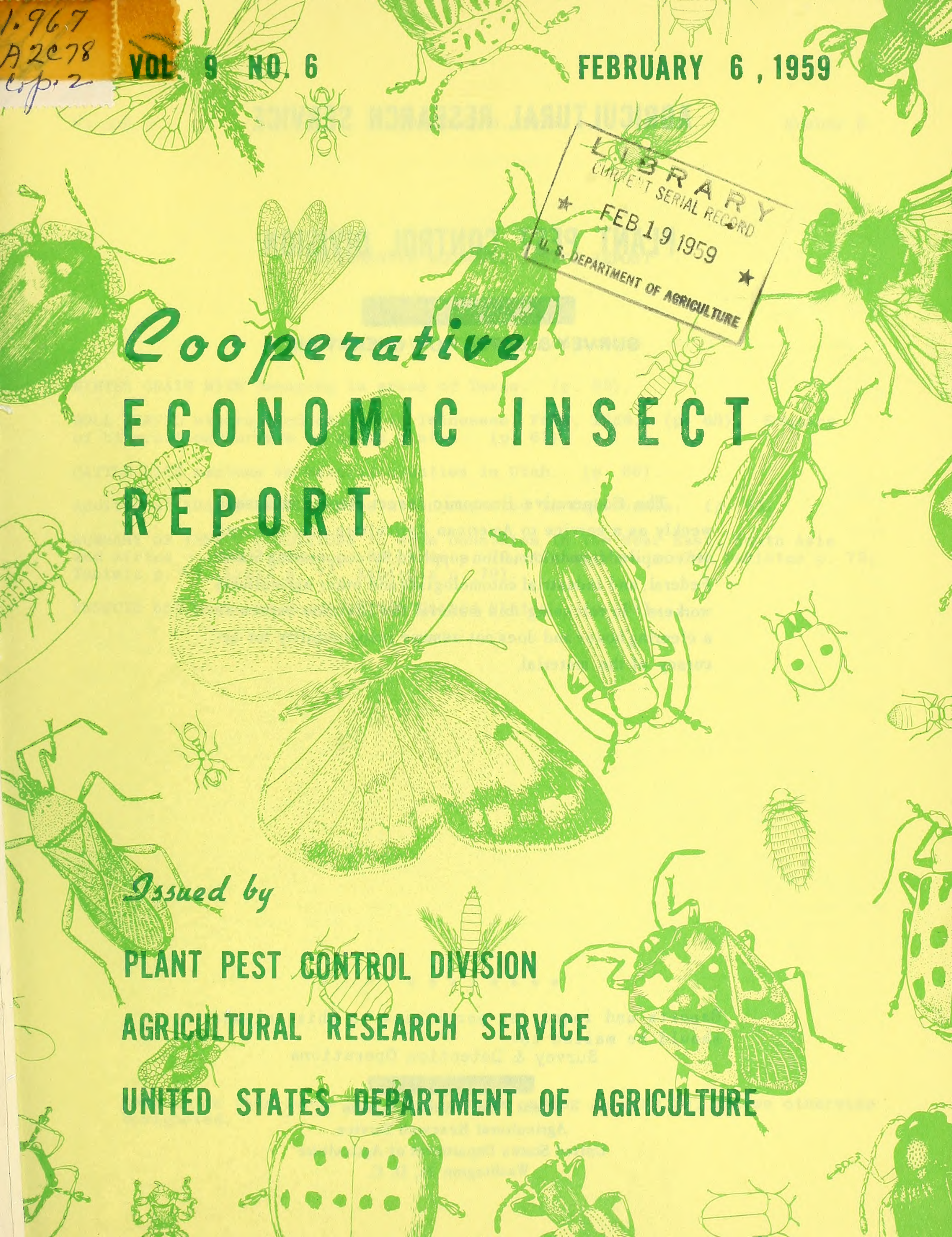

VOL. 9 NO. 6 FEBRUARY 6, 1959

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U. S. DEPARTMENT OF AGRICULTURE

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY

SURVEY & DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Plant Pest Survey
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

Volume 9 February 6, 1959 Number 6

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

WINTER GRAIN MITE damaging in areas of Texas. (p. 65).

BOLL WEEVIL hibernation counts in Tennessee, Fall, 1958. (p. 66). Summary of hibernation surveys in seven states. (p. 67).

CATTLE LICE serious in several counties in Utah. (p. 66).

Additional KHAPRA BEETLE infestation reported in California. (p. 68).

SUMMARY OF INSECT CONDITIONS in some countries in the Near East, South Asia and Africa - 1958. (Iraq p. 69, Iran p. 70, Afghanistan p. 74, Pakistan p. 75, Tunisia p. 77, Libya p. 78, Ethiopia p. 79).

INSECTS not known to occur in the United States. (p. 81).

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Reports in this issue are for the week ending January 30, unless otherwise designated.

WEATHER BUREAU 30-DAY OUTLOOK

FEBRUARY 1959

The Weather Bureau's 30-day outlook for February calls for temperatures to average below seasonal normals over most of the Nation except for above normal east of the Appalachians and in West Coast states. Coldest weather is predicted for the Northern Plains. Precipitation is expected to exceed normal over the eastern half of the country and also in the western Plateau and Rocky Mountain states. Subnormal amounts are anticipated over the Northern Plains and in west Texas. Near normal precipitation is indicated in unspecified areas.

Weather forecast given here is based on the official 30-day "Resume and Outlook", published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING FEBRUARY 2

Last week's temperatures, repeating the now familiar pattern of several previous weeks, were persistently mild in the Far West with weekly averages as much as 7° above normal; while east of the Rockies warmer weather the first part of the week was followed by an inflow of cold air which brought subzero cold to northern areas and freezing to northern portions of some of the Southern States. Higher daytime temperatures the first part of the week, ranging in the 40's and 50's from the central Great Plains through the Ohio Valley and Northeast removed most of the snow cover from those areas, except in northern New York and New England, and much of the previous week's glaze in Illinois and Indiana. The weekend cold east of the Rockies dropped temperatures to the lowest levels so far this winter at many northern points. Some of the extreme low temperatures were: Dunn Center, North Dakota, -46° on January 31; Bemidji, Minnesota, -40° on February 1; Lone Rock, Wisconsin, -36° and Newport, Vermont, -25° on February 2.

Light to moderate precipitation was widespread, except in the Far Southwest where little or none occurred, with heavy amounts in the Pacific Northwest and in the Gulf and south Atlantic coastal areas. Much of the week's precipitation fell during the movement of a low pressure disturbance from the Pacific Northwest to the lower Great Plains early in the week and then northeastward over the St. Lawrence Valley on January 30. Heaviest falls, up to 5 inches in the form of rain, occurred in the South, as warm, moist air overran the inflow of cold air from the North during the weekend. In Texas, this weekend, precipitation was a mixture of glaze, snow and rain, while mostly snow in Oklahoma and Kansas, with extreme falls of 8 inches or more in both states and also in northeastern Texas. Soil moisture in the South was improved by the moderate to heavy rains, although the subsoil is still dry in some southeastern areas due to the extended fall and early winter dry spell there. The eastern snow cover now extends from Oklahoma to the Great Lakes, and across northern portions of New York and New England. The cover is unusually deep in the Great Lakes region, ranging up to 50 inches along Lake Superior. The ground is mostly bare at lower elevations in the Far West. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - LOUISIANA - A total 132 collected in 100 sweeps on burclover in Iberville Parish. (Spink).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Mortality counts of overwintering larvae in Payne County showed over 60 percent mortality in a field of late sorghum and only 5 percent mortality in an adjoining corn field. (Arbuthnot).

GREENBUG (Toxoptera graminum) - OKLAHOMA - Light infestations common in small grain fields in Noble and Kay Counties. Averaged 0.8-6 per linear foot. Averaged 16 per linear foot in one Blackwell area wheat field, with one-half of aphids either winged or developing wings. Infestations were scattered and averaged 0-4 per linear foot in Payne, Garfield, Grant, Major and Alfalfa Counties. All populations in north central area lower than during December, 1958. (VanCleave). TEXAS - Very light to no infestation in 12 counties checked on upper south plains and in northwest areas. Averaged 0-3 per linear foot in 8 south central counties checked. (Hawkins).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Counts in north central area small grain fields lower than in December, 1958. Averaged 0-25 per linear foot in most fields, with 200 per linear foot in one field in Fairview area, Major County. (VanCleave).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Populations lower, 0-50 per linear foot, in barley fields in north central area. (VanCleave).

PEA APHID (Macrosiphum pisi) - OKLAHOMA - Common in most north central alfalfa fields with up to 25 per square foot. Although still light, numbers increased during past month. (VanCleave).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Populations down in all north central area alfalfa fields. Present in all fields checked and averaged up to 50 per square foot. (VanCleave). KANSAS - Averaged 15 per 25 plants in Pottawatomie County and 20 per 25 plants in Riley County. Populations in Cloud County were 5 per 25 plants in each of 3 fields, and 2 and 10 per 25 plants in 2 separate fields in Republic County. (Peters).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Infestations more common in small grain fields in north central area. Numbers increased in most fields. Averaged up to 200 per linear foot. (VanCleave).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Caused considerable damage to oats in Hunt County. (Davis). Large acreages damaged in Bell County. (Hawkins).

FRUIT INSECTS

A MEALYBUG (Pseudococcus malacearum) - CALIFORNIA - Medium on Meyer lemon in Redwood City, San Mateo County. (Cal. Coop. Rpt.).

SCALE INSECTS - CALIFORNIA - Lepidosaphes ficus medium on fig trees in Willows, Glenn County. Aspidiotus perniciosus heavy on almond trees in the same area, and heavy on pear trees in Riverside, Riverside County. A. hederae heavy on persimmon trees in Santa Paula, Ventura County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

POPLAR PETIOLE GALL APHID (Pemphigus populi-transversus) - CALIFORNIA - Medium infestation on roots of Brassica kaber in Davis, Yolo County. (Lange).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - LOUISIANA - Heavy on turnips in East Baton Rouge Parish. (Spink).

YELLOW-MARGINED LEAF BEETLE (Microtheca ochroloma)- LOUISIANA - Medium on turnips in East Baton Rouge Parish. (Spink).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TENNESSEE - Survey to determine the population of hibernating weevils in McNairy County was late in 1958 due to unfavorable weather. Trash examinations indicate that there is an average of 1,214 boll weevils per acre in 1958 compared with 2,365 in the fall of 1957. If counts had been made in McNairy County at an earlier time, the counts may have been considerably higher. The counts in this county represent the heaviest infested area in the State. However, counts in other southern counties should be only slightly lower. (Locke).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SCALE INSECTS - MARYLAND - Leucaspis japonica heavy on privet, light on holly at Hyattsville, Prince Georges County. Saissetia hemisphaerica on maidenhair fern at Rockville, Montgomery County. (U. Md., Ent. Dept.). CALIFORNIA - Eriococcus araucariae medium on pine in North Island, San Diego County. Heavy infestation of Aonidiella citrina on euonymus in Exeter, Tulare County. (Cal. Coop. Rpt.).

A MEALYBUG (Spilococcus andersoni) - CALIFORNIA - Heavy on juniper trees in the Wasco area of Kern County. (Cal. Coop. Rpt.).

CYCLAMEN MITE (Steneotarsonemus pallidus) - CALIFORNIA - Damaged cylamen plants in Ventura, Ventura County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - MARYLAND - Averaged 3 per animal in 12 hereford calves examined at Upper Marlboro. (U. Md., Ent. Dept.). UTAH - Numerous in young cattle in Tremonton-Penrose area of Box Elder County. (Knowlton, Finch). General in Weber, Millard, Tooele and Salt Lake Counties. (Knowlton).

CATTLE LICE - VIRGINIA - Heavy on cattle in a dairy herd in Bland County. (Mallory). UTAH - Total of 1,100 cattle treated in Wasatch County. (Knowlton, Daniels). Serious in parts of Cache, Box Elder and Weber Counties. Becoming more conspicuous in Millard, Tooele, Salt Lake, Summit and Juab Counties. (Knowlton).

LIGHT TRAP COLLECTIONS

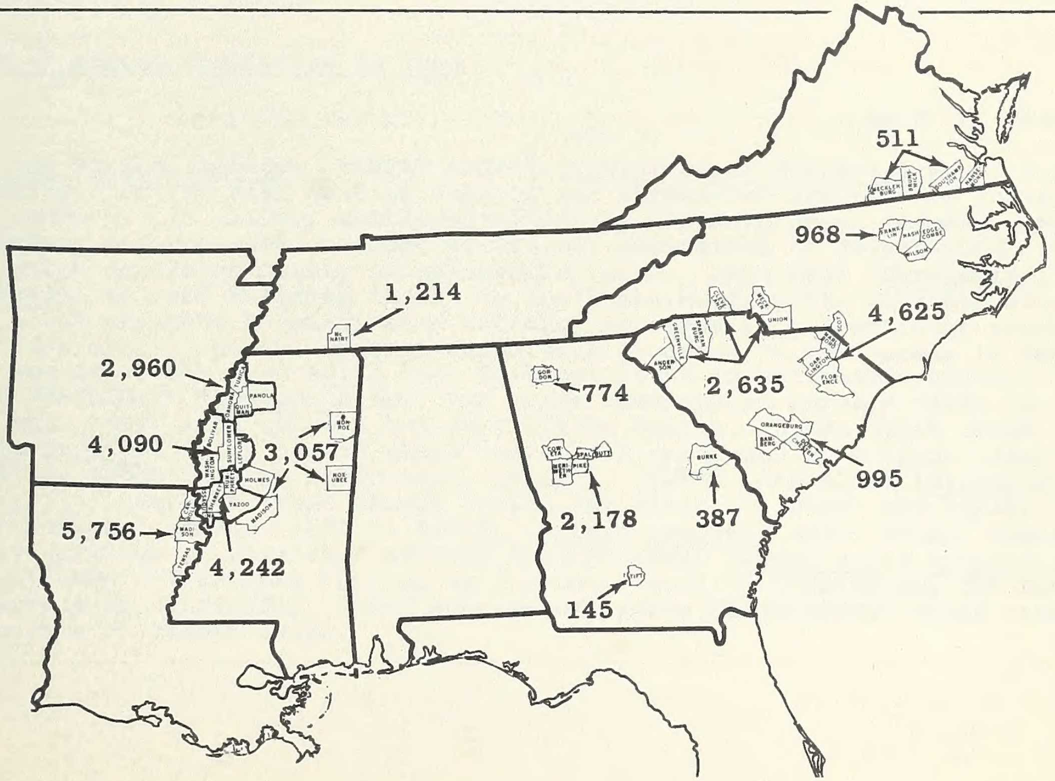
	Pseudaletia unipuncta	Agrotis ypsilon	Feltia subterranea
LOUISIANA			
Baton Rouge 1/23-29	24	13	29
SOUTH CAROLINA			
Charleston 1/19-2/1	12	10	10

SUMMARY OF BOLL WEEVIL HIBERNATION SURVEYS - FALL 1958

Collections of surface woods trash samples have been made to date in 7 cotton producing States during the fall of 1958 by cooperating State and Federal agencies. The data from the collections were summarized and reported separately in previous issues of the Cooperative Economic Insect Report as follows: North Carolina, South Carolina and Virginia - Vol. 8, page 1008; Louisiana - Vol. 9, page 4; Georgia - Vol. 9, page 21; Mississippi - Vol. 9, page 31.

Fall Woods Trash Examinations for Hibernating Boll Weevils

State	Area or District	Number of Live Weevils per Acre	
		1957	1958
	Area 1 - South central S. C.	3,978	995
North Carolina	Area 2 - Coastal plains (N.C. & S.C.)	11,374	4,625
South Carolina	Area 3 - Piedmont (N.C. & S.C.)	6,752	2,635
Virginia	Area 4 - North central N. C.	2,205	968
	Area 5 - Southeastern Va.	3,335	511
Georgia	Northwest	1,113	774
	North central	5,034	2,178
	East central	1,791	387
	South	387	145
Mississippi	Lower delta	5,243	4,242
	Central delta	6,269	4,909
	North delta	11,264	2,960
	Hill section	4,087	3,057
Louisiana	Northeast	8,043	5,756
Tennessee	McNairy County	2,365	1,214



STORED-PRODUCT INSECTS

KHAPRA BEETLE (*Trogoderma granarium*) - CALIFORNIA - Medium infestation on a farm property in Thermal, Riverside County, is fifth active infestation known in the State at present time. (Cal. Coop. Rpt.).

Stored-products Insect Situation in Texas - INDIAN-MEAL MOTH (*Plodia interpunctella*),CONFUSED FLOUR BEETLE (*Tribolium confusum*), SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) and RICE WEEVIL (*Sitophilus oryza*) were found in large numbers on sacks of stored grain in Parmer County. Some dermestids were also found. (Russell, Meekma, Hawkins). A GRAIN BEETLE (*Ahasverus advena*), SAW-TOOTHED GRAIN BEETLE and CONFUSED FLOUR BEETLE were light to medium in stored grain in Chambers County. (Turney).

SUMMARY OF INSECT CONDITIONS IN SOME COUNTRIES OF THE NEAR EAST, SOUTH ASIA AND AFRICA

1958

The summaries of insect conditions that follow have been submitted in the 1958 Annual Report of the Regional Insect Control Project with headquarters in Beirut, Lebanon. The first attempt to present information on the more important insect pests of the Near East and South Asia in the Cooperative Economic Insect Report was made in 1955 following a request from the survey committee of the Entomological Society of America. For the benefit of CEIR readers, it may be well to point out that the Regional Insect Control Project is a cooperative program operated by the Plant Pest Control Division, ARS, in accordance with an agreement signed on February 18, 1954, between the U. S. Department of Agriculture and the International Cooperation Administration. At the present time a staff of 8 entomologists are stationed in 7 countries working with personnel of the U. S. Operations Missions and Ministries of Agriculture.

The work of these entomologists is designed to fulfill commitments to the host countries with respect to the evaluation of locust problems, the demonstration of control practices, development of insect surveys and the training of nationals in methods, procedures and the organization of applied entomology and plant quarantine work. During the last few years the Ministries of Agriculture have strengthened their Plant Protection organizations. Special attention has been given to survey and plant quarantines. Consequently an increased effort has been made to collect, identify and record the insect species of economic importance. First-hand information on foreign pests should serve to familiarize the entomologist and the pesticide industry of this country with the major pests in the areas reported on. It should lead to better understanding and mutual interest in entomological problems common to the United States and other nations. (E. J. Hambleton).

Summary of Insect Conditions in Iraq

By W. O. Ridgway

Cereal and Forage Insects: DESERT LOCUST (*Schistocerca gregaria*) moved into the country from the vast Arabian deserts and threatened agriculture in the entire country. An all-out mobilized effort by the Government reduced damage to a minimum and prevented escapes of the new generation to neighboring countries, which developed mainly in cultivated lands. SENN PEST (*Eurygaster integriceps*), an ever existing threat to small grains from its mountain hibernation areas adjacent to cultivated valleys, appeared in concentrated numbers in isolated areas. Locust control teams were diverted in some areas to this pest. The often mistaken *Aelia* spp. were not found in noticeable numbers but another PENTATOMID (*Dolycoris* sp.) was quite numerous in cereals early in the season and caused much concern but very little damage. DURRA STALK BORER (*Sesamia cretica*) again caused great concern in experimental sorghum plantings and limited broomcorn and field corn acreages. WHEAT LEAF MINER (*Syringopais temperatella*) caused extreme damage during the winter to wheat and barley in northern drought areas. ALFALFA WEEVIL (*Hypera postica*) again caused damage to early cuttings of alfalfa. SPOTTED ALFALFA APHID (*Therioaphis maculata*) and an ALFALFA CATERPILLAR (*Colias* sp.) reduced quality alfalfa hay and made hand harvesting difficult. Mixed species of native GRASSHOPPERS again caused much concern on summer crops.

Fruit Insects: GREEN PEACH APHID (Myzus persicae) was quite severe on peach, plum, apricot and pomegranate. WOOLLY APPLE APHID (Eriosoma lanigerum) stimulated a government-sponsored control campaign in areas of heaviest infestation. CODLING MOTH (Carpocapsa pomonella) was again common wherever apples were grown. A SPIDER MITE, probably EUROPEAN RED MITE (Panonychus ulmi), was very extensive on apples during late summer. A DATE FULGORID (Ommatissus binotatus) was common during the spring but built up to severe proportions with the second generation during late summer. Spring controls were limited because of the locust emergency. PHYCITID larvae (Ephestia spp.) were common, infesting dry dates and figs. Citrus was again nearly free of any economic pests.

Truck Crop Insects: The common problem of APHIDS on cabbage, melons, lettuce, tomatoes, turnips and sugar beets again prevailed. WHITEFLIES (Bemisia spp.) stimulated needed controls on melons, peas and beans. BALUCHISTAN MELON FLY (Myiopardalis pardalina) was again a major problem on melons and stimulated some experimental controls and studies. RED PUMPKIN BEETLE (Raphidopalpa foveicollis) was quite severe on early-planted cantaloups. A MELON BEETLE (Epilachna chrysomelina) was common on melons and other vegetable crops. ONION THRIPS (Thrips tabaci) and a SEED MAGGOT (Hylemya sp.) were common on onions. MOLE CRICKETS (Gryllotalpa spp.) caused concern in vegetable and ornamental gardens. A CABBAGEWORM (Pieris rapae) was common throughout the season.

Cotton Insects: SPINY BOLLWORM (Earias insulana) and a SPIDER MITE (Tetranychus sp.) teamed up again after early season treatments to become the major problem on cotton. Controls were started again after a month of interruption during the middle of the season.

Miscellaneous: CRAB LOUSE (Phthirus pubis) was taken from the eyelashes of a six-month-old baby along with nits attached to eyelash hairs.

Summary of Insect Conditions in Iran

By R. Q. Gardenhire

Cereal and Forage Insects: DESERT LOCUST (Schistocerca gregaria) invaded Iran for the first time since 1954 and was heavy throughout southwestern and southern areas. Lesser invasions extended into eastern, central and extreme northwestern areas. Crop damage was held to a minimum through intensive control efforts. Aggregate acreage reported treated in all areas totaled 2,765,000 acres. MOROCCAN LOCUST (Dociostaurus moroccanus) was the heaviest in several years in Fars Province and heavy damage to rangelands and wheat occurred, despite extensive control. Heavy infestations also occurred in Gorgan, Khorrasan, Khuzistan and Kerman Provinces. Aggregate acreage reported treated in all areas totaled 2,035,000 acres. Native GRASSHOPPERS (Calliptamus sp., Dociostaurus spp. and others) infested most areas. Aggregate acreage reported treated totaled 425,000 acres. SENN PEST (Eurygaster integriceps) continued at low level, with no serious damage to cereals reported. PENTATOMIDS (Aelia furcula and A. virgata) were extremely heavy in several localized areas, causing as much as 50 percent loss of wheat in the Hamedan area. Dolycoris baccarum (Det. P. D. Ashlock) invaded cereal fields near Dezful in Khuzistan, with population densities as high as 70 per square meter reported. No important damage was observed. A SCARAB BEETLE (Anisoplia sp.) was reported very numerous in several western areas and adults damaged maturing wheat heads. A WHITE GRUB (near Haplida sp.)(Det. J. G. Rosen) greatly reduced stands of young cereal plantings in Khuzistan during late winter. EUROPEAN CORN BORER (Pyrausta nubilalis) (Det. H. W. Capps) was moderately heavy in the limited plantings of field corn in the Caspian area. DURRA STALK BORER (Sesamia cretica) was the most important pest of corn and sugarcane throughout Iran, and in conjunction with a CRAMBID STALK BORER (near Chilo sp.) (Det. H. W. Capps) caused severe damage to sorghum in Baluchistan.

CEREAL LEAF MINER (*Syringopais temperatella*) became increasingly important on wheat and barley in southwestern and southern areas, particularly where cereal and opium crop rotation had been discontinued. Complete destruction of many fields occurred in late winter, with 60-90 larvae per small plant common. LUCERNE-FLEA (*Sminthurus viridis*) (Det. D. L. Wray) was in great abundance in wheat fields and common on wild alfalfa in Khuzistan Province. ENGLISH GRAIN APHID (*Macrosiphum granarium*) (Det. L. M. Russell) infestations were heavy on wheat in southern areas. GREENBUG (*Toxoptera graminum*) (Det. L. M. Russell) was present but not abundant on cereals in the south. CORN LEAF APHID (*Rhopalosiphum maidis*) (Det. L. M. Russell) infested barley in Khuzistan Province. ARCTIID CATERPILLARS (*Arctia* sp. and others) (Det. H. W. Capps and W. D. Field) fed extensively on all species of range plants in many areas, frequently invading adjoining cereal fields. ALFALFA WEEVIL (*Hypera postica*) continued to be the most serious pest of alfalfa in all areas and generally destroyed first cutting and caused heavy damage to second cutting. SPOTTED ALFALFA APHID (*Therioaphis maculata*) was of occasional economic importance causing honeydew and much difficulty in harvesting. SWEETCLOVER WEEVIL (*Sitona cylindricollis*) adults were extremely abundant on alfalfa in the Karaj area, defoliating many plants. MIRIDS (*Deraeocoris punctulatus* (Det. P. D. Ashlock) and *Calocoris norvegicus* (Det. R. I. Sailer)) were common on alfalfa in the vicinity of Tehran and Karaj.

Truck Crop Insects: SPIDER MITES and APHIDS were probably the most destructive pests to truck crops, with no crop escaping serious damage. BEET ARMYWORM (*Laphygma exigua*) infestations dropped to a very low level and in most areas no control measures were required on sugar beets. A SUGAR-BEET CROWN BORER (*Gnorimoschema ocellatella*) was not of economic importance until late summer, then rapidly increased to where 100 percent infestation was common. A SUGAR-BEET STEM BORER (*Lixus incanescens*) was generally present but of minor importance. SPIDER MITES (*Tetranychus* spp.) were the only pests observed on eggplant and caused heavy dropping of foliage in many western and northwestern areas. They were the most important pests of sugar beets in some of the more arid regions, whereas BEAN APHID (*Aphis fabae*) was the major pest of this crop in the cooler, northern Province of Azerbaijan. SPINACH LEAF MINER (*Pegomya hyoscyami*) (Det. R. H. Foote) infestations on sugar beets were the heaviest in several years, with serious economic damage in many central localities. FLEA BEETLES (*Chaetocnema* spp.) caused heavy damage to sugar beets in the young seedling stage. BALUCHISTAN MELON FLY (*Myiopardalis pardalina*) and MELON BEETLE (*Epilachna chrysomelina*) damaged melons and cucumbers in all areas. RED PUMPKIN BEETLE (*Raphidopalpa foveicollis*) was of lesser importance on melons and was seen only in the south. CABBAGEWORMS (*Pieris rapae*, *P. brassicae* and *Plutella maculipennis*) were common on cabbage with the most serious damage caused by *P. rapae*. CABBAGE APHID (*Brevicoryne brassicae*) was heavy on cabbage and cauliflower generally. A FLEA BEETLE occurred in great abundance on cabbage throughout the season in all areas. Nymphs of a PENTATOMID (*Eurydema ventrale*) were quite abundant on cabbage during late summer in Azerbaijan Province, with some damage. TURNIP WEBWORM (*Hellula undalis*) (Det. H. W. Capps) damaged cabbage and sometimes caused serious damage to turnips. TURNIP APHID (*Rhopalosiphum pseudobrassicae*) (Det. L. M. Russell) was extremely heavy on turnips during late winter in Khuzistan Province, and also infested wild crucifers. A CHRYSOMELID (*Colaphellus hoefti*) caused extensive damage to turnip foliage in Khuzistan Province. EUROPEAN CORN BORER (*Pyrausta nubilalis*) (Det. H. W. Capps) infested bell peppers at Shahi on the Caspian Sea. TOMATO RUSSET MITE (*Vasates lycopersici*) caused severe russetting and dropping of tomato foliage in Khorramabad, resulting in severe sunscalding of tomatoes. A TOMATO FRUITWORM (*Heliothis armigera*) generally attacked tomatoes, but no infestations exceeding five percent were observed. TOMATO CATERPILLAR (*Prodenia litura*) was a major pest of all types of vegetable crops in Khuzistan Province.

Deciduous Fruit Insects: CODLING MOTH (*Carpocapsa pomonella*) severely infested apples countrywide, attacked pears to a lesser extent and caused limited damage to quince. ERMINE MOTHS (*Hyponomeuta* sp. or spp.) completely defoliated many apple trees in Azerbaijan Province, caused serious leaf damage in most apple-growing areas and infested apricot, plum and quince. PLUM FRUIT MOTH (*Laspeyresia funebrana*) infested 50-90 percent of the prune crop in many areas. Damage to plums was much less severe. A LACE BUG (*Stephanitis pyri*) occurred predominately on apples and also on pears in all fruit-growing areas. Damage was light to very severe. SPIDER MITES, particularly a BRYOBIA MITE (*Bryobia rubrioculus* (Sheuten))* heavily infested deciduous fruit trees. A prune orchard near Amol in the Caspian Sea area was almost completely defoliated by CLOVER MITE. A CERAMBYCID TWIG BORER killed many terminal branches of apricots, cherries and apples over a wide area of central and western Iran. Attacks were not confined to weakened trees. SHOT-HOLE BORERS (*Scolytus* spp.) killed many previously weakened peach, plum, cherry and apricot trees. Several SCALE INSECTS, *Parlatoria oleae*, *Lepidosaphes ulmi*, *Nilotaspis halli* and *Chionaspis asiatica* , were important on deciduous fruit trees. *Saissetia oleae* killed many olive trees in the Rudbar area. Intensive control measures are underway.

Citrus Insects: A complex of SCALE INSECTS and CITRUS RUST MITE represent the most important economic pests of Iranian citrus. These occur primarily in the Caspian Sea area. Frequently, heavy infestations of three or four species of scale insects will be found on a single tree. Extensive efforts are being made to reduce this damage, and, in the Caspian citrus-growing area, more than one and one-half million trees were treated in 1958. CITRUS RUST MITE (*Phyllocoptruta oleivora*) was probably the most important single citrus pest in 1958. Unusually heavy infestations, extensive spread to additional areas and improper timing of control resulted in severe russetting in many groves. CITRUS RED MITE (*Panonychus citri*) was common, serious damage was observed on citrus nursery stock. TEXAS CITRUS MITE (*Eutetranychus banksi*) (Det. E. W. Baker) was the most common spider mite attacking citrus in southern areas, while DICTYOSPERMUM SCALE (*Chrysomphalus dictyospermi*) was the most widespread scale insect in the Caspian region. CHINESE WAX SCALE (*Ceroplastes sinensis*) became more widespread and was serious in some areas. PURPLE SCALE (*Lepidosaphes beckii*), CHAFF SCALE (*Parlatoria pergandii*) and *P. ziziphus* were of major importance on citrus along the Caspian Sea. The following SCALE INSECTS, *Lepidosaphes gloveri*, *Pulvinaria floccifera*, *P. aurantii*, *Coccus pseudomagnoliarum*, *C. hesperidum*, *Aonidiella citrina* and *A. aurantii*, infested citrus in scattered areas of the Caspian region but were generally of limited importance. COTTONY-CUSHION SCALE (*Icerya purchasi*) was a problem only in those areas where adjoining host plants were heavily infested. ORIENTAL YELLOW SCALE (*Aonidiella orientalis*) was the only scale of importance on citrus in the hot and arid southern regions. CITRUS LEAF MINER (*Phyllocnistis citrella*) was important in the limited southeastern areas.

Nut Insects: Loss of pistachios and almonds is extremely heavy each year. Even though almond production is high, it was not uncommon to find orchards where ALMOND NUT BORER (*Eurytoma amygdali*) caused practically 100 percent loss of nuts. Severe damage by this insect occurred in the large northwest almond-producing region in 1958. The pistachio insect problem is much more complex, with several species causing major damage in 1958. The major species involved are PISTACHIO LEAFHOPPER (*Idiocerus stali*) (Det. J. P. Kramer), PISTACHIO PSYLLID (*Agonoscena targioni*), PISTACHIO NUT BORER (*Eurytoma plotnikovi*) (Det. B. D. Burks), a GELECHIID NUT BORER (*Recurvaria pistacicola*), a HAIRY CATERPILLAR (*Ocneria terebythina*), PISTACHIO LEAF MINER (*Stigmella promissa*), a SCOLYTID (*Chaetoptelius vestitus*) (Det. W. H. Anderson), a BUPRESTID (*Capnodis cariosa*), a LEPIDOPTEROUS TWIG BORER, a PISTACHIO SCALE (*Lepidosaphes pistaciae*) and a SPIDER MITE (*Tetranychus* sp.). Several other

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* Van Eyndhoven, G. L. 1956. Ent. Bereich. 16:45-46.

insects caused minor damage to pistachios. Reliable sources estimate that 50 percent of the entire 1958 crop will be lost to insects, even though several million trees were treated. This would represent a loss of between 4 and 5 million dollars. An orchard near Kerman was observed where 95 percent or more of the pistachio crop was destroyed by a combination of insects.

Grape Insects: VINE MOTH (Lobesia botrana) caused minimum damage to grapes due to a very effective control program in infested areas. A GRAPE MOTH (Sparganothis pilleriana) infested grapes in the vicinities of Ghazvin and Tahkestan. GRAPE ERINEUM MITE (Eriophyes vitis) was common in Azerbaijan Province, but caused only minor damage. CICADAS infested grape roots in the Hamedan and Kermanshah areas and damage was sufficient to cause much concern.

Cotton Insects: SPINY BOLLWORM (Earias insulana) infestations were generally much less severe than in 1957. This probably may be attributed to more effective control measures and climatic conditions less favorable for buildup. A COTTON BOLLWORM (Heliothis armigera) caused less damage to cotton in the Caspian region than in 1957. Infestations rarely exceeded 25 percent, 5-10 percent being most common. SPIDER MITES (Tetranychus spp.) frequently necessitated the application of control measures in southern areas. APHIDS, THRIPS and WHITEFLIES were common in cotton, damage being severe in scattered localities. NOCTUIDS (Laphygma exigua, Prodenia litura and Xanthodes graellsii) (Det. H. W. Capps) attacked young cotton in Khuzistan Province, but damage was usually limited.

Forest, Ornamental and Shade Tree Insects: An ERMINE MOTH (Hyponomeuta sp.) completely defoliated many willow trees in early spring in the Shiraz area. POPLAR LEAF BEETLE (Melasoma populi) was generally distributed and caused extensive defoliation, particularly of poplar nursery trees, in western Iran. A POPLAR TRUNK APHID (Phloeomyzus passerinii) was very heavy on trunks of poplar trees in Borujerd. A BUPRESTID BORER (Capnodis sp.) killed a large percentage of trees in poplar nurseries at Borujerd and attacked larger trees to a lesser degree. GYPSY MOTH (Porthetria dispar) occurred in the deciduous forests of the Elburz Mountains, but no serious damage was reported or observed. MOROCCAN LOCUST (Dociostaurus moroccanus) - Adult flying locusts completely devastated an area of approximately ten square miles near Kazerun, stripping all leaves from jujube trees (Zizyphus sp.) and shrubs. CITRUS BLACKFLY (Aleurocanthus woglumi) was common on Zizyphus sp. throughout Khuzistan Province. COTTONY-CUSHION SCALE (Icerya purchasi) was extremely heavy on maples in Babol and very heavy on Spanish broom (Spartium junceum) in several Caspian localities. GREEDY SCALE (Aspidiotus camelliae) killed sections of euonymus and boxwood hedges in several Caspian Sea localities. BLACK SCALE (Saissetia oleae) heavily infested oleander at Ramsar.

Miscellaneous Insects: OLD WORLD DATE MITE (Oligonychus afrasiaticus) severely damaged the date crop in many widely scattered southern areas. The extent of damage caused by a DATE FULGORID (Ommatissus binotatus) was not reported, but control operations were greatly reduced in 1958. DATE STEM BORER (Oryctes elegans) was an important pest in Jahrom and Bam areas. DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi) was generally light on tea in the Caspian region. However, infestations sometimes became quite heavy in densely shaded plantings. EUROPEAN CORN BORER (Pyrausta nubilalis) (Det. H. W. Capps) attacked kenaf stems (Hibiscus cannabinus),a fiber plant grown for jute, throughout the Caspian region. Infestations averaged about ten percent. This borer also attacked stems of Abutilon avicenna. A SESAME POD BORER (Antigastra catalaunalis) (Det. H. W. Capps) was generally distributed in sesame-growing areas and frequently destroyed a high percentage of seed pods. A SESAME LEAFHOPPER (Circulifer opacipennis) was considered the most important pest of sesame in Khuzistan Province, destroying large areas and even entire fields. A LEAFHOPPER (Orosius albicinctus) also attacked sesame but was of less importance. TOBACCO APHIDS were most common and serious on tobacco. In Azerbaijan Province extremely heavy infestations caused severe honeydew on tobacco. A TERMITE (*Amitermes vilis*) (Det. T. E. Snyder) caused heavy damage to building timbers and railroad ties in Khuzistan Province. Another TERMITE (*Anacanthotermes vagans septentrionalis*) (Det. T. E. Snyder) occurred throughout Iran, but generally did not cause extensive damage.

Beneficial Insects: About 80 million SENN PEST PARASITES(*Microphanurus semistriatus*) were again reared for field release. About 22,000 VEDALIA (*Rodolia cardinalis*), either field-collected or insectary-reared, were released for biological control of cottony-cushion scale. COCCINELLIDS (*Brumus octosignatus*, *Chilocorus bipustulatus*, *Adonia variegata*, *Prophylaea 14-punctata* and *Exochomus flavipes*) (Det. E. A. Chapin) were important predators of aphids and spider mites. BRACONID PARASITES - *Phanerotoma* sp. (Det. C. F. W. Muesebeck) was reared from sesame pod borer and great numbers of *Bracon brevicomis* (Det. C. F. W. Muesebeck) were reared from larval noctuids. *Trioxys utilis* and *Praon palitans* continued to affect control of spotted alfalfa aphid in all areas of the country. ICHNEUMONID PARASITES (*Dicaelotus* sp. and *Horogenes* sp.) (Det. L. M. Walkley) were reared from *Gnorimoschema ocellatella* and a PTEROMALID PARASITE (*Dinarmus pistaciae*) (Det. B. D. Burks) was reared from pistachio nut borer.

Summary of Insect Conditions in Afghanistan

By D. D. Shallow

Cereal and Forage Insects: SENN PEST (*Eurygaster integriceps*) was not serious in the Oxus River Valley. Twenty-eight fields were checked in nine locations and out of 9,680 sweeps, 34 adults and 99 nymphs were collected on May 19 and 20. During 1958 the senn pest was collected in Kabul for the first time. Three other species of stink bugs feeding on wheat in Mimanah Province earlier in the season were *Nezara viridula*, *Dolycoris baccarum* and *Aelia* sp.). CUTWORMS caused heavy damage in Khattagan, Jalalabad, Khandahar and Kabul Provinces in May and June. COWPEA APHID (*Aphis medicaginis*) was serious in Kabul with as many as 150 per tip on cowpeas and other legumes during June. This season the larvae of a type of LESSER CLOVER LEAF WEEVIL caused as much as 50 percent damage in the alfalfa fields. PEA APHIDS were again abundant during the entire growing season. DESERT LOCUST (*Schistocerca gregaria*) did not become a serious menace this season as expected. MOROCCAN LOCUST (*Dociostaurus moroccanus*) and ITALIAN LOCUST (*Calliptamus* poss. *italicus*) became epidemic in Mazari Shariff Province and between 35,000 and 50,000 acres were under control. As usual there were many species of GRASSHOPPERS in different crops, as well as forage crops.

Fruit Insects: APPLE APHID (*Aphis pomi*) was quite severe in orchards from Kabul to Shebar Pass and required controls. Two other APHIDS (*Hyalopterus pruni* and *Pterocholorus persicae*) fed in large numbers on apple trees. One of the worst fruit pests again in 1958 was a WEBWORM (*Malacosoma* sp.). About 527,000 trees were sprayed from Kalat in the south to Shebar Pass in central Afghanistan for this species and another moth. A serious pest on almond trees was a SOFT SCALE believed to be *Lecanium kosswigi*. Several thousand trees were treated when the crawlers were moving. CODLING MOTH (*Carpocapsa pomonella*) was relatively light in Kabul Province but reports from Khattagan Province indicate that up to 100 percent of the fruit was infested in many orchards.

Citrus Insects: In the Jalalabad area citrus was subject to severe infestation of an unidentified WHITEFLY (*Dialeurodes* sp.). During 1958, there were three generations and 30,000 trees were sprayed during the first-generation adult emergence period. A SPIDER MITE caused scattered damage from June through September.

Cotton Insects: In the main cotton-growing area of Khattagan where practically all cotton is raised, there is only COTTON APHID (*Aphis gossypii*) which was sporadic in area covered and severity of infestation. SPINY BOLLWORM (*Earias insulana*) increased from an average 10 percent square and boll infestation during the first week of August to a 42 percent infestation during the second week in September. In the southern cotton-growing area in the Helmand Valley the infestation increased from less than 1 percent in June to an average of 30 percent in September. PINK BOLLWORM (*Pectinophora gossypiella*) was collected in Jalalabad Province after 8 surveys in that area. It will be extremely important to keep this pest from moving into the real cotton-growing area of northern Afghanistan. Also present in the Helmand Valley in 1958 was A WHITE-FLY which thrived on the dense foliage of cotton and produced honeydew to support smutty black fungus. An estimated 10 percent of the fields were infested.

Sugarcane and Sugar Beet Insects: SUGARCANE STEM BORER (*Argyria sticticraspis*) infested about 10 percent of the cane in the Jalalabad area. The sugar beet crop in Khattagan Province was heavily attacked in the early stages by WIREWORMS and CUTWORMS. Many fields were replanted.

Insects Affecting Man and Animals: MOSQUITOES were serious as usual and many houses in the country were sprayed. BED BUG (*Cimex lectularius*) is always present as well as BODY LOUSE (*Pediculus humanus humanus*) and HEAD LOUSE (*Pediculus humanus capitis*). It is estimated that at least 20 percent of the people living in the slum areas of Kabul are pestered with these insects and to a lesser extent with FLEAS. CATTLE TICKS were found on at least 50 percent of the cows and to a lesser extent on sheep and horses. Control was obtained by hand picking.

Summary of Insect Conditions in Pakistan

By G. T. Brooks

Cereal and Forage Crop Insects: RICE STEM BORER (*Schoenobius incertulus*) caused only slight damage throughout the upper Hyderabad region of West Pakistan. In East Pakistan infestations ranged from moderate to heavy, with losses as high as 20 percent. RICE GRASSHOPPER (*Hieroglyphus banian*) caused minor damage in isolated areas of West Pakistan. A light, localized infestation of a RICE DELPHACID (*Sogata furcifera*) occurred in Hyderabad. RICE HISPA (*Dicladispa armigera*) and ARMYWORM (*Pseudaletia unipuncta*) were confined to East Pakistan, having a generalized distribution of serious proportions. No serious pest outbreaks were recorded on wheat. Localized heavy infestations of A PENTATOMID (*Eurygaster maurus*) were reported from small areas in the Khuzdar areas in the Quetta region. A TERMITE (*Microtermes obesi*) caused slight and scattered damage in the Punjab. MAIZE AND JAWAR BORER (*Chilo zonellus*) caused moderate damage to maize and jawar in the North-West Frontier Province and Punjab. SUGARCANE PYRILLA (*Pyrilla perpusilla*) was serious on these crops in the Peshawar region. ALFALFA throughout West Pakistan had only minor infestations of ALFALFA WEEVIL (*Hypera postica*) and COWPEA APHID (*Aphis medicaginis*). BEET ARMYWORM (*Laphygma exigua*) caused moderate damage to this crop in the Karachi area.

Sugarcane Insects: SUGARCANE TOP BORER (*Scirpophaga nivella*) and SUGARCANE STEM BORER (*Argyria sticticraspis*) were serious on sugarcane in the Punjab, and all of East Pakistan, with infestations ranging 10-30 percent. SUGARCANE PYRILLA continued to be serious in West Pakistan, being confined mainly to the Peshawar region; only light infestations occurred in the Punjab where previous control measures had reduced the population. SUGARCANE WHITEFLY (*Aleurolobus barodensis*) was a minor pest in West and East Pakistan. SUGARCANE STEM BORER and a ROOT BORER (*Emmalocera depresella*) were serious and caused heavy damage to sugarcane in the Punjab.

Fruit Insects: A MANGO STEM BORER (*Batocera* sp.) was serious and MANGO LEAFHOPPERS (*Idiocerus* spp.) were light on mangoes in the Karachi area. In other mango-growing areas MANGO LEAFHOPPERS and MANGO MEALYBUG (*Drosicha stebbingi*) were serious. In the Karachi area, some trees close to guava orchards were lightly infested with FRUIT FLIES (*Dacus* spp.). Guava trees were also lightly infested in this area, but for the first time there was a heavy infestation of an unidentified LEAF ROLLER. Throughout the guava-growing area of other parts of West Pakistan, fruit flies continued as major pests. In the Quetta area, FIG BORER (*Batocera rufomaculata*) lightly infested figs. Apple trees in this region were severely infested with CODLING MOTH (*Carpocapsa pomonella*) and HAIRY CATERPILLAR (*Euproctis signata*). These pests extended into the Peshawar region but infestations were very light. Several APHIDS (*Eriosoma lanigerum*, *Pterochlorus persicae* and *Myzus persicae*) occurred throughout the fruit-producing areas of the Quetta and Peshawar regions on peach, pear, plum and apple in varying degrees from moderate to heavy. SAN JOSE SCALE (*Aspidiotus perniciosus*) on apple, peach and plum, OLIVE SCALE (*Parlatoria oleae*) on pears and *Lecanium coryli* on peach and plum, were distributed throughout these same areas and were also moderate to heavy. PEACH FRUIT FLY (*Dacus zonatus*) infestation was mild as result of previous control.

Vegetable Insects: CABBAGE BUTTERFLY (*Pieris brassicae*) occurred on cruciferous crops throughout Pakistan but was serious only in Peshawar, in West Pakistan. In the Karachi area, DIAMONDBACK MOTH (*Plutella maculipennis*) was serious on cabbage. Melons throughout West Pakistan were seriously infested by FRUIT FLIES (*Dacus* spp.), HADDA BEETLES (*Epilachna* spp.) and RED PUMPKIN BEETLE (*Raphidopalpa foveicollis*). Moderate infestations of an APHID (*Aphis* sp.) were reported from most of the area. Serious outbreaks of BRINJAL BORER (*Leucinodes orbonalis*)and a BRINJAL LACE BUG (*Urentius sentis*) occurred on eggplant in the Karachi and Punjab areas, whereas BRINJAL LEAF ROLLER (*Eublemma olivacea*) was a serious pest in East Pakistan. POTATO JASSID (*Empoasca devastans*) was the only serious pest of potato and appeared confined largely to the southern regions of West Pakistan. *E. devastans* was reported serious on peppers and tomatoes in the Karachi area. TERMITES (*Odontotermes obesus* and *Microtermes obesi*) caused sporadic damage to these crops in the same locality.

Fiber Crop Insects: COTTON STEM BORER (*Sphenoptera gossypii*) caused serious damage to cotton for the first time in the localized area near Rahimyar Khan, Multan region, and PINK BOLLWORM (*Pectinophora gossypiella*) was of major concern in the mountainous tracts of the Lahore region. This latter pest was of minor concern also in other cotton-growing areas. Severe damage was caused by SPOTTED BOLLWORMS (*Earias* spp.) in the canal-irrigated areas of the Sind. COTTON WHITEFLY (*Bemisia tabaci*) was serious in the Punjab area and in the Sind region. HOUSE CRICKET (*Acheta domestica*) infestations were light in West Pakistan, but serious outbreaks of GRASSHOPPERS (*Chrotogonus* spp.) were reported from the Punjab and upper Sind areas. A LEAFHOPPER (*Empoasca* sp.) was heavy throuhgout the cotton-growing area. Heavy sporadic infestations of TERMITES occurred throughout the cotton belt. There were no serious outbreaks on jute in East Pakistan; however, JUTE SEMI-LOOPER (*Anomis bulifera*) and JUTE HAIRY CATERPILLAR (*Diacrisia obliqua*) were reported as serious.

Summary of Insect Conditions in Tunisia

By E. R. Millet

Cereal Insects: HESSIAN FLY (*Phytophaga destructor*) causes about 20 percent damage to wheat in the north, but is never serious in the hotter and drier central region. Several species of insects, mostly COLEOPTEROUS and LEPIDOPTEROUS, cause severe damage to stored grain on small farms each year. EUROPEAN CORN BORER (*Pyrausta nubilalis*) was found in a small corn planting near Tunis. DESERT LOCUST (*Schistocerca gregaria*) occurred in heavy yellow invasion stages, coming mostly from Algeria. The largest occurrences were in the Sbietla area. A few pink invasion flights were observed in the north but were not heavy. Because of effective control, egg-laying was limited to about 3 percent and thus various instars were not a problem.

Fruit Insects: The most serious damage to apples was caused by CODLING MOTH (*Carpocapsa pomonella*). APPLE APHID (*Aphis pomi*) and WOOLLY APPLE APHID (*Eriosoma lanigerum*) were light. MITES on apples were light, but both EUROPEAN RED MITE (*Panonychus ulmi*) and a BRYOBIA MITE (*Bryobia rubrioculus**) were observed. MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) was severe on peaches in the environs of Tunis, and twig damage from an OLETHREUTID MOTH (*Grapholitha* sp.) was prominent on peaches. On almonds, MITES and APHIDS were the main pests. A WAX SCALE (*Ceroplastes rusci*) was quite abundant on figs around Tunis.

Citrus Insects: Where citrus occurs in Tunisia, mostly in the Cap Bon and Soukra areas, SCALES were the most important insects that caused damage. These consisted mainly of DICTYOSPERMUM SCALE (*Chrysomphalus dictyospermi*), CALIFORNIA RED SCALE (*Aonidiella aurantii*) and FLORIDA RED SCALE (*Chrysomphalus aonidum*). In the Cap Bon area, CITRUS BUD MITE (*Aceria sheldoni*) was extremely severe on lemons, CITRUS RED MITE (*Panonychus citri*) was reported and damage was noted which was attributed to *Brevipalpus* sp. Considerable damage was also noted and believed to have been caused by CITRUS RUST MITE (*Phyllocoptruta oleivora*). MEDITERRANEAN FRUIT FLY caused severe losses to citrus fruit in the Cap Bon area in 1958. Other pests on citrus were COTTONY-CUSHION SCALE (*Icerya purchasi*) and BLACK SCALE (*Saissetia oleae*) in the Cap Bon area. The predator, VEDALIA (*Rodolia cardinalis*) was present.

Olive Insects: The most serious insect on olives was probably a SHOT-HOLE BORER (*Hylesinus oleiperda*) which was particularly damaging to young trees. A PSYLLID (*Euphyllura olivina*) was kept in check in the Sfax area during 1958 by parasitism. OLIVE FLY (*Dacus oleae*) generally causes about 20 percent damage, which is not considered too great; this is due to high temperatures in the Sfax area, but there were bad reports of it in Cap Bon, Sousse and Sahel, where the temperatures are not as high. OLIVE SCALE (*Parlatoria oleae*) was not serious and BLACK SCALE (*Saissetia oleae*) was reported in the Sfax area. OLIVE MOTH (*Prays oleellus*) was also observed as damaging olives in Tunisia.

Truck Crop Insects: NEMATODES were bad on tomatoes in the Sahel, Chott Maria and Monastir areas. TOMATO RUSSET MITE (*Vasates lycopersici*) was serious in the Medjerda Valley and at Cap Bon and Sahel. GREEN APHIDS occurred on many truck crops and were abundant on potatoes. BLACK CUTWORM (*Agrotis ypsilon*) was light. Although COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) is not yet officially recorded as occurring in Tunisia, there were several reports of traces of it in the north. MELON BEETLE (*Epilachna chrysomelina*) was light as was damage from NEMATODES. A LEPIDOPTEROUS LARVA (*Lepidechidna acharnias*) was heavy on artichokes in the Medjerda Valley and APHIDS, which are believed to transmit a yet undetermined virus of artichokes, were also heavy throughout the growing area.

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* Van Eyndhoven, G. L. 1956. Ent. Bereich. 16:45-46.

Household and Miscellaneous Insects: HOUSE FLY (*Musca domestica*) occurred very heavily throughout Tunisia, particularly in the cities, towns and villages where no preventive or sanitation methods are followed. BED BUG (*Cimex lectularius*) was quite common in all the poorer sections of villages, towns and cities. MOSQUITOES were quite annoying in Tunis. BROWN-BANDED and AMERICAN ROACHES (*Supella supellectilium* and *Periplaneta americana*) were observed in houses in Tunis as was SILVERFISH (*Lepisma saccharina*).

Summary of Insect Conditions in Libya

By A. F. Kaatz

Cereal and Forage Insects: DESERT LOCUST (*Schistocerca gregaria*) appeared in Libya at three different locations during 1958, but at different times. From January through April, small intermittent swarms came up from the south, passed through the Sirte Gulf coast area and disappeared into the east. Some egg-laying en route occurred near Nofilia. These egg bed sites were treated with good results and the area was clear of locusts. During late April and May a few small swarms overflowed into Libya from Tunisia along the border country. Prompt treatment reduced their number and the remainder moved south. The first week of October a large swarm passed through Ghat Oasis and into Algeria. Several GRASSHOPPERS were found in alfalfa but not in numbers large enough to cause severe damage. They were *Anacridium aegyptium*, *Aiolopus strepens*, *Thisoicetrus annulosus* and *Sphingonotus obscuratus lameerei*. DURRA STALK BORER (*Sesamia cretica*) destroyed 50 percent of sweet corn at Wadi Kaam. Control was not very successful. Sorghum was heavily infested in the same area. A SCARABAEID (*Tropinata squalida*) destroyed several barley fields near Sebha before being controlled. Alfalfa had several insect pests in 1958. The most severe was EGYPTIAN COTTONWORM (*Prodenia litura*). An ALFALFA CATERPILLAR in the coastal belt alfalfa fields caused minor damage. SPOTTED ALFALFA APHID (*Therioaphis maculata*) occurred in many fields. Treatment by farmers gave control for a short time and repeat treatment was necessary. An ARMYWORM (*Laphygma* sp.) was serious in a few local areas near Tripoli. Broadbeans were heavily infested by COWPEA APHID (*Aphis medicaginis*). Many fields were ruined and had to be replanted with other crops. A SPHINGID MOTH also caused some damage but spraying operations brought it under control.

Peanut Insects: A MOLE CRICKET (*Brachytrupes megacephalus*) caused much damage to young peanut plants throughout the Coastal Belt. EGYPTIAN COTTONWORM (*Prodenia litura*) also caused severe damage in all peanut-growing areas. BEET ARMYWORM (*Laphygma exigua*) caused serious damage in some areas. SPIDER MITES ruined several fields near Zanzur.

Olive Insects: OLIVE FLY (*Dacus oleae*) appeared early in 1958. First punctured olive fruit was noted June 8th on the Italian varieties. Local varieties were not affected until after the large varieties had been harvested. A BLISTER BEETLE (*Zonabris oleae*) usually found only in northern Cyrenaica, also caused damage in the Gebel area near Tigrini. Near Misurata a DIPTEROUS LARVA (*Clinodiplosis oleisuga*) damaged most of the 2-year olive trees. SCALES, while present as always, were not serious, except for a few local areas where *Pollinia pollini* was serious. *Saisettia oleae* was found but was not serious.

Citrus Insects: MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) was present for ten months of 1958. Very serious on other fruits until September and then infested most orange groves. Only limited controls were attempted. There were many CITRUS MITES on lemons this season. No control was undertaken except for a few experiments. Two APHIDS (*Aphis gossypii* and *Toxoptera aurantii*)caused damage to growing tips of orange trees. COTTONY-CUSHION SCALE (*Icerya purchasi*) was on the increase in 1958, while *Parlatoria ziziphus* and *Chrysomphalus dictyospermi* decreased. Many natural parasites, such as *Chilocorus bipustulatus*, appeared to keep the population down. SPIDER MITES also were found in many orange groves. A SNAIL (*Theba pisana*) overran many small orange trees and prevented normal growth early in spring.

Other Fruit Insects: MEDITERRANEAN FRUIT FLY was the serious pest of many fruits this season, starting with apricots, then peaches, pears, pomegranates, red peppers, and ending up on oranges. Figs were infested with FIG SCALE (*Ceroplastes rusci*) and *Aspidiotus zonatus*. Young apple trees were infested by a BLACK APHID, mostly near Sidi Mesri. An ALEYRODID (*Siphoninus finitimus*) was serious in the Uaddan Oasis. Control gave good results. WOOLLY APPLE APHID (*Eriosoma lanigerum*) occurred on young apple trees at Garabuli. Control gave good results. CODLING MOTH (*Carpocapsa pomonella*) was present in some apple groves. Peach trees throughout the country were attacked by PEACH TWIG BORER (*Anarsia lineatella*). APHIDS appeared early on peach trees but dry hot winds caused them to disappear. Pear trees from Collina Verdi to Sorman Oases were attacked by *Carpocapsa* spp. but treatment prevented much damage. APHIDS and TINGIDS (*Stephanitis* spp.) occurred in local areas only. DATE SCALE (*Parlatoria blanchardi*), found in most all southern oases, made only moderate attacks. Almond trees were attacked by a *Scolytus* sp. BEETLE and PEACH TWIG BORER. Grapes were attacked by HORNWORMS near Sidi Mesri. VINE MOTH (*Lobesia botrana*) was present but not serious.

Tobacco Insects: In the Gebel areas near Garian a BIBIONID FLY MAGGOT (*Bibio hortulanus*) caused severe damage to tobacco seedlings. TOBACCO SPLITWORM (*Gnorimoschema operculella*) was again serious in a few plots and control was necessary. NEMATODES were found in many areas as well as a GRASSHOPPER (*Anacridium aegyptium*).

Stored-product Insects: RICE WEEVIL, LESSER GRAIN BORER and ANGOUMOIS GRAIN MOTH were the most serious stored-grain pests. Some CADELLE, GRANARY WEEVIL and KHAPRA BEETLE were found. *Bruchus pisorum* was found in pea seeds and COCKROACHES in sacked wheat at Nalute. On dried figs *Ephestia* sp. and *Myelois ceratoniae* caused some damage.

Insects Affecting Man and Animals: FLIES and MOSQUITOES were serious as usual and BED BUGS were found in all villages. SCORPIONS were very numerous and many persons were stung. During one 3-week period, over 25 persons were admitted to the hospital for sting treatment. TICKS and LICE were found in all areas on camels, sheep and goats, as well as several HIPPOBOSCID FLIES.

Miscellaneous Insects: Melons were attacked by GRUBWORMS, APHIDS, MELON BEETLES and WHITEFLIES; tomatoes by GRASSHOPPERS and NEMATODES; eggplants by WHITEFLIES and *Prodenia litura*, seriously by both. In 1958, for the first time, an insect pest was found on potatoes. BEET ARMYWORM (*Laphygma exigua*) destroyed several fields of potatoes before being controlled. SPIDER MITES were serious on snapbeans and rose bushes.

Summary of Insect Conditions in Ethiopia

By W. C. Kurtz

Cereal and Forage Insects: DESERT LOCUST (*Schistocerca gregaria*) was heavy and widespread over the northern provinces, including Eritrea, and escapes threaten eastern and southern areas, besides adjacent Somali Peninsula and Kenya. Damage to sorghum, millet, wheat and barley was severe. Control was applied to some 30,000 acres. Considerable undetermined acreage was also treated.

A COCCINELLID (Chnootriba similis) was found on barley at Debra Brehan. Severe damage in conjunction with native GRASSHOPPERS was done. In some fields replanting was necessary. A NOCTUID larva doubtfully identified as Sesamia sp. considerably damaged corn in the Bishoftu area. PENTATOMIDS were heavy in limited areas in Eritrea on sorghum and caused considerable damage to cut and shocked sesame at Om Hera. Native GRASSHOPPERS were found on barley at Debra Brehan and were reported to have caused widespread damage in other areas.

Peanut Insects: DESERT LOCUST (Schistocerca gregaria) occurred in Eritrea. Grasshoppers were found on young plants. Good control was maintained. Later damage by fledglings was not severe as plants had matured.

Fruit and Nut Insects: MEDITERRANEAN FRUIT FLY (Ceratitis capitata) was serious on guava at Shashamani. A FRUIT FLY, possibly C. capitata, occurred on 50 percent of the tangerines at Erre. Larvae of a SWALLOWTAIL (Papilio demoleus v. demodocus) defoliated young orange trees at Bishoftu. A species of LASIOCAMPIDAE defoliated young orange trees at Bishoftu. Several types of SCALE INSECTS heavily infested citrus trees.

Truck Crop Insects: APHIDS were prevalent on tomatoes, cabbage, lettuce and brussel sprouts. SOUTHERN GREEN STINK BUG (Nezara viridula) damage light on cabbage. CUTWORMS caused considerable damage on cabbage in gardens at Addis Ababa. LEAFHOPPERS occurred on tomatoes and lettuce in small gardens in Addis and on potatoes at Holetta with slight damage. ANTS did considerable damage to potatoes in small gardens. They are reportedly harmful to other crops and flowers also. FLEA BEETLES were heavy on potatoes and strawberries. Control was effective. A FRUIT FLY caused considerable damage to tomatoes at Shashamani and MITES did considerable damage to cucurbits and tomatoes in gardens in Addis Ababa. CABBAGEWORMS were quite common.

Cotton Insects: THRIPS were a major pest and PINK BOLLWORM (Pectinophora gossypiella) caused some damage in the Tessenie area. SPINY BOLLWORM (Earias insulana) also caused some damage in the same area.

Oil Seed Insects: PENTATOMIDS were found in abundance on sesame in limited areas and caused considerable damage to cut and shocked sesame at Om Hera. DESERT LOCUST caused practically 100 percent damage to sesame in the Tessenie area.

Stored-product Insects: SAW-TOOTHED GRAIN BEETLE (Orzyaephilus surinamensis) occurred in stored flour in Addis Ababa. Other insects infesting stored products were prevalent and caused considerable damage. No suitable storage facilities exist.

Insects Affecting Man: FLEAS, FLIES, BED BUGS, COCKROACHES and MOSQUITOES were abundant. Malaria is quite prevalent in many areas up to 6500 feet, and a control program is in operation. Funds, personnel and commodities are being supplied by ICA. WHO and UNICEF are also assisting in the furnishing of technical personnel and commodities, respectively.

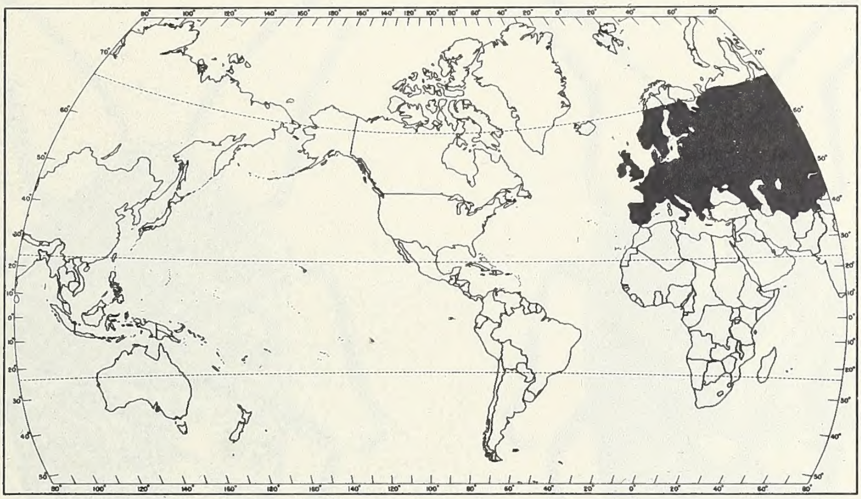
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

CABBAGE BUG (*Eurydema oleraceum* L.)

Economic Importance: This pentatomid is a very common pest of crucifers in most areas of Europe. Attacks have been very severe in outbreak years, hundreds of bugs being found on each plant at some locations. An attack can lead to the loss of the stand or severe stunting of the crop. Though crucifers seem to be the preferred hosts, damage to other crops, such as potatoes, has been recorded. There are numerous color varieties of this species within its general range of distribution, as well as several other species of *Eurydema*, but as far as known *E. oleraceum* appears to be the most important species in the genus in Europe. *E. oleraceum* has been intercepted several times at United States ports of entry in past years.

Distribution: Occurs throughout Europe, Turkey, Turkestan and areas of Siberia.

Hosts: A general feeder on crucifers. Also recorded on alfalfa, asparagus, beans, beets, cereals, clover, lettuce, gherkin, potatoes, *Verbascum thapsus* and ornamental plants.

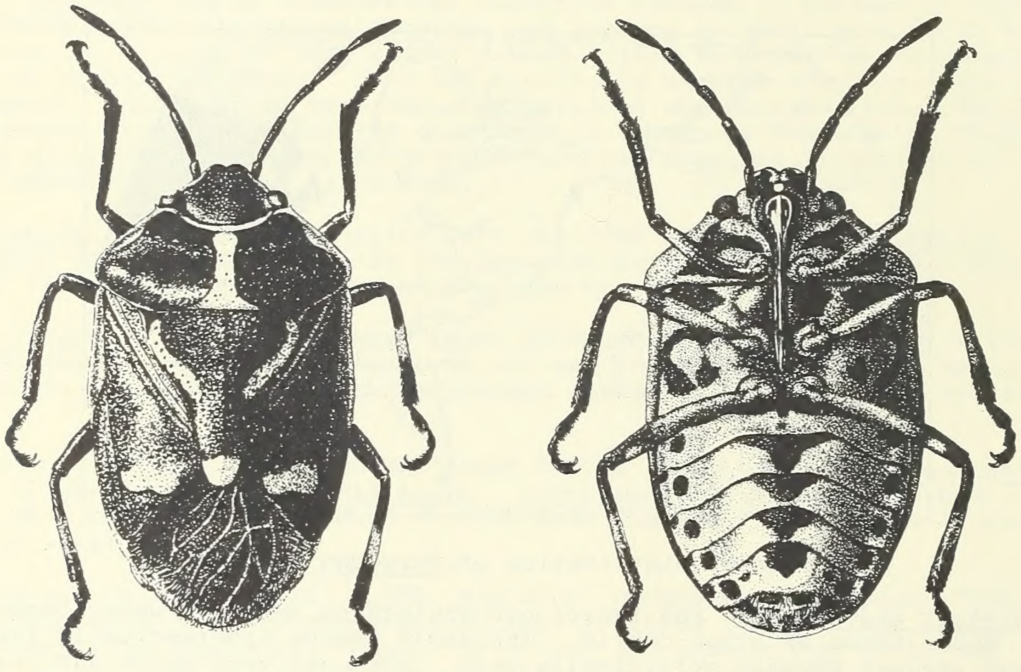


General Distribution of *Eurydema oleraceum*

Life History and Habits: The insect overwinters as an adult under lumps of earth, dead leaves or other debris. The adult leaves hibernation in the spring when the weather becomes sufficiently warm. They are very agile and jerky in their movements. They fly easily in the sunlight for considerable distances. Adults puncture the plant tissue, causing small yellow spots at each puncture. One bug may be responsible for a number of such spots. Damage is not great on old plants, younger plantings suffering worst. Several days after mating, the females begin to oviposit. They deposit from 4 to 6 batches of eggs over a period of time. Each batch is symmetrically arranged in two rows of 5 or 6 eggs each. Oviposition takes place on the underside of leaves and petioles. Incubation requires about 30 days. The young nymphs disperse over the plant and feed on the foliage. They pass through 4 or 5 molts, becoming adults in around 45 days. In France there is one generation a year.

(Pentatomidae, Hemiptera)

Description: Adult 6-8 mm; head short, the lateral edges of the juga distinctly sinuate, edges of pronotum straight, the transverse groove lightly marked, color gun-metal blue. Some individuals have dark undersurfaces, some light. In the former, legs are black with a pale ring on the tibiae (less on the posterior except in the variety nigripes where all tibiae are black). In the individuals with pale venter, femora are largely pale at the base and all of the tibiae have a ring of the same color. The venter is ornamented mid-ventrally with various-sized black spots and with black spots on each stigma and on external anterior angle of each segment. There are numerous varieties of this species. They may be grossly divided as follows: (1) corium without spots, (2) corium with a pale spot near apical end, (3) corium with a spot occupying all of the apical part. Abdomen of nymph pale yellow, tinged with brown, with four central black bars separated by red lines; outside these a broad vinous red band running all round the abdomen. Legs ochreous, tibiae with black lines, femora with black rings; antennae four-jointed, black; no ocelli. Eggs are greenish-yellow with a uniform white operculum and characteristic barrel-shape. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies.) CEIR 9 (6) 2-6-59



Dorsal

Ventral

Adult of Eurydema oleraceum

Figures (except map) from Gomez-Menor, J. 1949. Bol. de Patol. Veg. y Ent. Agr. 16:31-68.

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